almost throughout the year. A distinct abnormality in the habit and the floral parts was noted in this species in 1981 which appeared similar to antholysis reported earlier in *Sesamum indicum* L.[2] and *Pedalium murex* L.[3] The infection leads to virescence, phyllody and proliferation.

Following characteristic observations were recorded on the infected plants.

(i) The infected plants can be recognised from a distance because of stunted growth, condensed appearance and lack of coloured flowers. The internodes become shorter (figure 1B).

(ii) New branches exhibit infection and the leaves become smaller and yellowish. Chlorophylls *a,b* and carotenoids decreased in the infected plants (table 1).

(iii) Infected plants possess much less mucilage in comparison with normal plants, when crushed in water.

(iv) Number of flowers was less in infected plants than in healthy ones (figures 1B and D). The colour of corolla also changed from pink/white to green. The infected flowers possessed more chlorophylls *a*, *b* and carotenoids as compared to normal ones.

(v) Sizes of pedicel, calyx and corolla were larger than the normal, and the petals got separated very much, giving a polypetalous makeup (figure 1D).

(vi) Stamens shrivelled in infected flowers and when present they were very short in length. Anthers were sterile having no pollen grains.

(vii) Size of the ovary increased and became flattened. Length of style was reduced. Ovary became leaf-like when it was severely infected (figure 1F).

(viii) Infected fruits were very small in size and mostly had no seeds.

When the aqueous extract of the infected plants was sprayed on healthy plants, they did not receive the infection which indicates that antholysis does not spread by contact.

TABLE 1

Chlorophylls a, b, total chlorophylls and carotenoids mg/g fresh weight in infected and healthy flowers and leaves of C. microphyllus

Plant part	Plant	Chlorophylls a	Chlorophylls b	Chlorophylls Total	Carotenoids
Flower	Healthy	5.39	1.04	6.43	1.28
	Abnormal	7.60	2.17	9.77	1.86
Leaf	Healthy	3.66	2.13	5.80	2.01
	Abnormal	2.01	1.78	3.80	1.21

The infection on *C. microphyllus* may be due to mycoplasma. Sen *et al.*[2] and Bansal and Sen[3] also assumed mycoplasma-like organism, responsible for antholysis. Antholysis on *C. microphyllus* is of great interest because the infection appeared only after the crop of *S. indicum* was harvested from the fields. Thus *C. microphyllus* may act as an alternate host for the perpetuation of disease year after year. Sen[4] has mentioned the occurrence of antholysis in a number of plants (*Borreria articularis*, Dicoma tomentosa, *Heliotropium marifolium*, *Pulicaria crispa*, *Vernonia cineria* and *C. microphyllus*), although he did not investigate them.

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NOTES ON INDIAN HYPHOMYCETES—VII *MONACROSPORIEALLA INDICUM* SP. NOV. ON MUSHROOM COMPOSE

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THE present paper deals with a new fungus which captured nematodes in adhesive traps typical of the predaceous series and subsequently been given an epithet of *Monacrosporiella indicum* sp. nov.

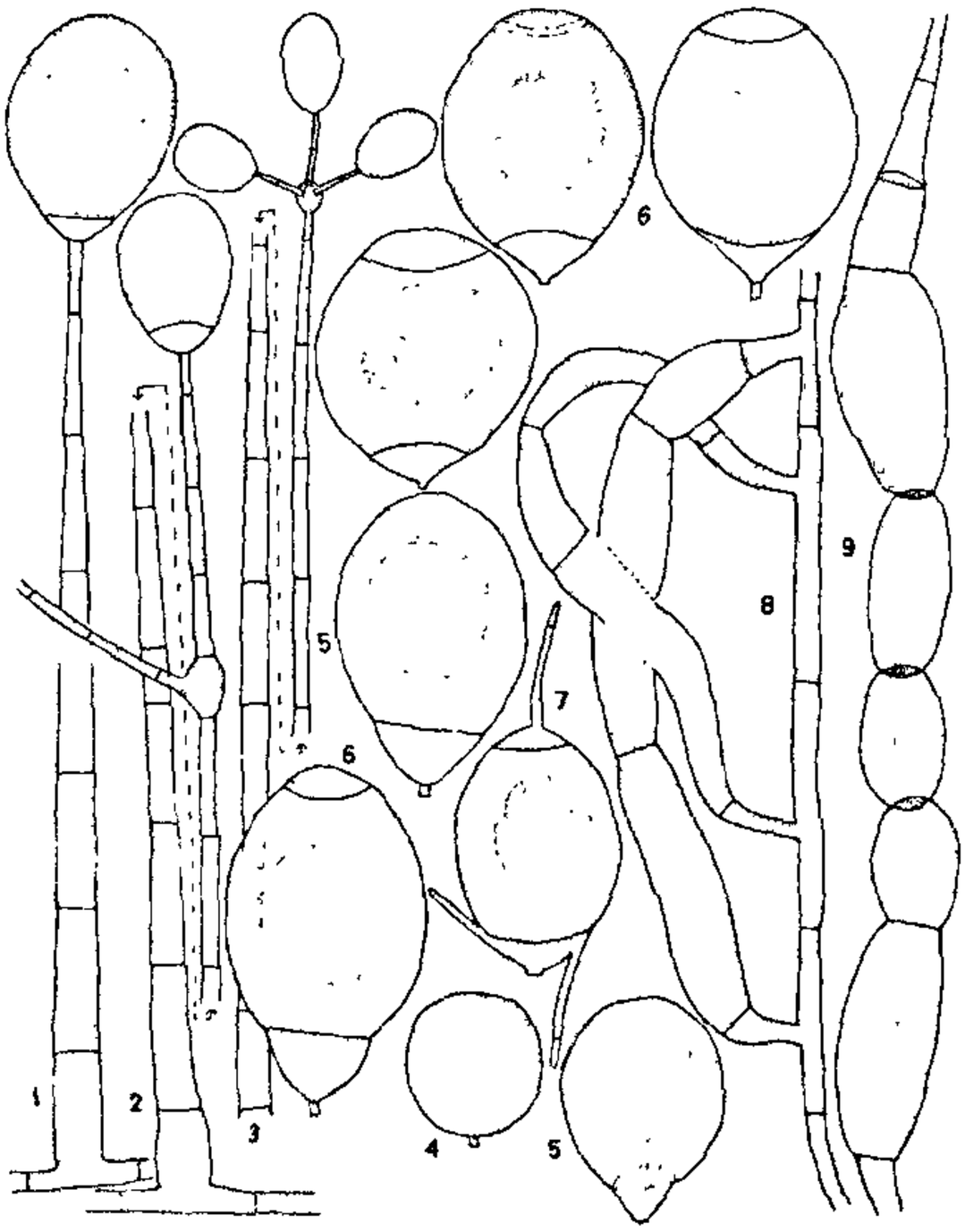
The genus *Dactylella* Grove was discussed by Subramanian[1] in which many species of this genus were transferred to *Monacrosporium* Oudem due to the presence of large subterminal cell of the conidium. Later[2] he again changed some species of *Dactylella* into other genus like *Monacrosporiella* Subr., *Drechsleromyces.* Subr., *Gangliophragma* Subr., *Lactydina* (Drech) Subr. and *Candelabrella* Rifai & Cooke on the basis of his recognised concept[3] of gangliar and blastoconidia.

In *Monacrosporium* solitary, hyalophragmoconidia are gangliar, whereas in *Monacrosporiella* these are blastoconidia which are marked by the presence of distinct basal hilum. Therefore, this new isolate has been placed in *Monacrosporiella* and as it does not tally with the type of this genus as well as other three species (which resemble superficially in spore shape) of *Monacrosporium*, consequently a new epithet is being proposed. However, from India[4] only *M. ellipsosporum* has so far been reported, and *Podospora faurelii* is the earlier record from the mushroom compost by the authors[5].

The culture and slide specimen showing the adhesive nematode traps has been deposited in ITCC and HCIO respectively of Mycology Division, I.A.R.I., New Delhi.

Monacrosporiella indicum sp. nov. (figure 1-9).

The species grew out from nematodes infested horse dung compost, while incubated at 20–25° C for four weeks and sporulated heavily on carrot potato agar media. Myceliym spreading vegetative hyphae colourless, septate at moderate interval, often 2-3 μm wide. Conidiophores colourless, erect, usually 8–20 septate, upto 350 μm 6 μm wide at the base tapering gradually upwards to 2.5 μm wide near the tip, simple or somewhat branched at the distal end.



Figures 1-9. Monacro sporiella indicum (× 800) **1.** Simple conidiophore; **2,3.** Branched conidiophores through nodes; **4.** Non-septate conidium; **5.** One Septate Conidia; **6.** Two Septate Conidia; **7.** Conidium showing aerial outgrowth; **8.** Nematodes adhesive trap; and **9.** Chlamydospores.

Conidia colourless, ellipsoidal or obvoid or broadly turbinate, broadly rounded at the tip, somewhat tapered proximally, truncate at the base, with distinct basal hilum, 22–30 μm long, 14-20 μm broad, 0-2 septate, commonly 2-septate terminal or basal cell bearing 1 or 2 aerial out growth of colourless filaments.

Chlamydospores hyaline. Cylindrical to globose, mostly 15-25 × 8-15 μm.

Isolated from House dung compost infested with nematodes, December 1981, collected from Mycology and Plant Pathology Division, I.A.R.I., New Delhi, P. N. Chowdhry and N. Bahl (ITCC 3081 type HCIO 33760).

Monacrosporiella indicum sp. nov. (figure 1-9)

Mycelium effusum, hyphais sterilibus incolouratis mediocriter septatis, plerumque 2–3 μm crassis. Conidiophora incolourata, erectae, plerumque 8–20 septate, 350 μm altae, basi seepius 6 μm crassae, sursum leniter attenuatae 2.5 μm crassae, simplices vel prope apicum aliquid. Conidii incolouratis, allipsoides vel obovides vel late turbineis, apice rotundatis deorsum paulum attenuatis, basi truncatis, cum hilo basilo distincto, plermque 22–30 μm longis, 14-20 μm crassis, 0-2 septatis, Vulgo biseptatis.

Chlamydosporae hyalinae, Cylindricae vel globosae, plerumque 15-25 × 8-15 μm.

In copro-equus, Consumens Vermiculos nematoeos, December, 1981, Mycology and Plant Pathology Division. I.A.R.I., New Delhi. P. N. Chowdhry and N. Bahl (ITCC 3081 Typus, HCIO 33760).

If the distinct basal hilum in conidium is not taken into account then the new species is superficially similar to *Monacrosporium globosporum*[6], *M. cystosporum*[7] and *M. eudermatum*[8] due to distally rounded cell of the hyalophragmo-conidium. Among these species only *M. eudermatum* is more closer to new species due to the common character of a large vacuole in conidium. Therefore, with differentiating characters, comparison between these two species is being made to justify the new taxon as follows.

Monacrosporium eudermatum (Drech) Subr.

Conidiophores septate only in lower region, often branched. Conidia are 37-55 × 21-35 μm size, mostly 3-septate without distinct basal hilum, profuse growth on CMA and no chlamydospore formation reported.

Monacrosporiella indicum sp. nov.

Conidiophores septate throughout, often branched through intermediate nodes or swellings. Conidia are 22 30 × 14-20 μm size. Mostly 2-septate with distinct basal hilum, poor growth on CMA, and hyaline, cylindrical to globose chlamydospores formed through the catenate basal mycelium.

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DISTRIBUTION OF *HETERODERA AVENAE* THE CAUSAL ORGANISM OF 'MOLYA' DISEASE OF WHEAT AND BARLEY IN INDIA

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AMONGST the economically important plant parasitic nematode species reported from India, *Heterodera avenae*, is of considerable siginificance because of the economic losses to wheat crop in heavily infested areas. The nematode was reported associated with the 'molya' disease of wheat and barley in 1958[1] from the Sikar District of Rajasthan. At that time and for a long time since, it was known to be confined to the State of Rajasthan only. However, with the availability of more and more trained nematologists, surveys have been going on which have brought forth valuable information on its presence in areas hitherto unknown. Chhabra[2] and Singh *et. al.*[3,4] have recorded infested areas in Punjab and Jammu and Kashmir, respectively. We have been conducting surveys and reporting the occurrence of the nematode in different areas of Rajasthan and Haryana. However, a proper mapping has not been done so far. Recently new infestation sites, Ghaziabad (U.P.) and Najafgarh Block (Delhi), have come to our notice. A close look into the progressive recognition of the infested areas has thrown some light on the possible means of its spread to new areas.

Taking 1956 as the base year, when 'wheat-sickness' was first spotted in the Sikar District of Rajasthan, and 1958 as the year when association of *H. avenae* with 'wheat-sickness' was finally confirmed, the spread of the disease was both towards north as well south. On the basis of surveys conducted during 1958–62, the infestation sites recorded were: Churu, Jhunjhunu (north of Sikar) and Jaipur and Ajmer (south of Sikar). Additionally, Nim-ka-Thana was also found infested. Subsequent surveys revealed infestations in Narnaul (Haryana), Beawar, Udaipur and Chittorgarh (Rajasthan). The infestation sites in Punjab were reported only in the late 60's with Hoshiarpur and Ludhiana as the only two sites. Subsequently the presence of the nematode was found at many other sites of Punjab, Haryana and Rajasthan besides still limited sites in U.P. and Delhi (figure 1).

Figure 1. Distribution of *H. avenae*. (O)

The pattern of spread indicates southern and north-eastern direction towards Uttar Pradesh. According to the present information, the western sector of Haryana is 'free' of *H. avenae* infestation. If we assume this as the correct situation, then initiation of infestation in Punjab may be independent of Rajasthan infestation. Indirectly, it is borne out also by the fact that Hoshiarpur and Ludhiana populations are different from the Rajasthan and Haryana populations[5]. The identification of the population types in Una (H.P.) and Jammu (J & K) may help in further precise assessment of the source of spread. Significantly all the infested areas, except Udaipur and Chittorgarh are in the sandy-loam or loamy-sand belt. Udaipur and Chittorgarh soils are comparatively heavier types but still friable and not the hard-pan type.